

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

Claims 1-22 (Cancelled)

Claim 23 (New) An imaging system for a vehicle, the imaging system comprising:

an illuminator for illuminating a predefined field located outside of the vehicle and adjacent an entryway to an interior of the vehicle;

a detector for detecting radiation reflected from a person located in the predefined field, the detector being responsive to the detected radiation for providing image signals; and

a processor that is responsive to the image signals from the detector, the processor including face recognition software for analyzing the image signals for facial features of the person located in the predefined field, the processor comparing facial features of the person to known facial features of authorized vehicle occupants to determine whether the person is an authorized vehicle occupant, the processor causing the entryway to automatically become unlocked in response to a

determination that the person is an authorized vehicle occupant.

24. The imaging system of claim 23 wherein the illuminator is an infrared source and wherein the detector is an infrared detector for receiving reflected infrared radiation.

25. The imaging system of claim 24 further comprising an infrared filter positioned between the detector and the predefined field.

26. The imaging system of claim 24 wherein the infrared source includes a cluster of infrared light emitting diodes.

27. The imaging system of claim 23 wherein the known facial features of the authorized vehicle occupants are facial images of the authorized occupants that are stored in a memory associated with the processor.

28. The imaging system of claim 23 wherein the illuminator is pulsed on and off, the detector obtaining a first image when the illuminator is on and obtaining a second image when the illuminator is off, the processor

determining a difference between the first and second images to mitigate effects of ambient light.

29. The imaging system of claim 23 wherein the illuminator is also adapted to illuminate a predefined interior vehicle field and the detector is adapted to detecting radiation reflected from an occupant of the vehicle that is located in the predefined vehicle interior field and to providing occupant image signals, the processor comparing facial features of the occupant image signals to the known facial features of authorized vehicle occupants and causing a vehicle operation to be performed in response to a facial feature match.

30. The imaging system of claim 29 wherein the system monitors gestures of the occupant and performs vehicle functions in response to detected gestures.

31. The imaging system of claim 29 wherein the vehicle is started in response to the facial feature match between the occupant image signals and the known facial features.

32. The imaging system of claim 29 wherein the processor, in response to a facial feature match,

identifies the occupant and limits operation of the vehicle to a maximum driving speed associated with the identified occupant.

33. The imaging system of claim 29 further including an intrusion alarm, the processor actuating the intrusion alarm in response to determining that the facial features of the occupant image signals do not match the known facial features of authorized vehicle occupants.

34. The imaging system of claim 33 wherein the processor records an image of the occupant in a memory in response to determining that the facial features of the occupant image signals do not match the known facial features of authorized vehicle occupants.

35. An intruder detection system for a vehicle, the intruder detection system comprising:

an illuminator for illuminating an interior portion of the vehicle;

a detector for detecting radiation reflected from a person located in the interior portion, the detector being responsive to the detected radiation for providing image signals indicative of an image of the person; and

a processor that is responsive to the image signals from the detector, the processor including face recognition software for analyzing the image signals for facial features of the person, the processor comparing facial features of the person to known facial features of authorized vehicle occupants to determine whether the person is an authorized vehicle occupant, the processor sounding an alarm and recording the image of the person in a memory when the processor determines that the person is not an authorized vehicle occupant.

36. The intruder detection system of claim 35 wherein the illuminator is an infrared source and wherein the detector is an infrared detector for receiving reflected infrared radiation.

37. The intruder detection system of claim 36 further comprising an infrared filter positioned between the detector and the predetermined field.

38. The intruder detection system of claim 36 wherein the infrared source includes a cluster of infrared light emitting diodes.

39. The imaging system of claim 35 wherein the illuminator is pulsed on and off, the detector obtaining a first image when the illuminator is on and obtaining a second image when the illuminator is off, the processor determining a difference between the first and second images to mitigate effects of ambient light.

40. An imaging system for a vehicle, the imaging system comprising:

an illuminator for illuminating an interior portion of the vehicle;

a detector for detecting radiation reflected from a person located in the interior portion, the detector being responsive to the detected radiation for providing image signals indicative of an image of the person; and

a processor that is responsive to the image signals from the detector, the processor including face recognition software for analyzing the image signals for facial features of the person located in the interior portion, the processor comparing facial features of the person to known facial features of authorized vehicle occupants to determine whether the person is an authorized vehicle occupant, the processor, in response to a facial feature match, identifying the occupant and limiting

operation of the vehicle to a maximum driving speed associated with the identified occupant.

41. The imaging system of claim 40 wherein the illuminator is an infrared source and wherein the detector is an infrared detector for receiving reflected infrared radiation.

42. The imaging system of claim 41 further comprising an infrared filter positioned between the detector and the predetermined field.

43. The imaging system of claim 41 wherein the infrared source includes a cluster of infrared light emitting diodes.

44. The imaging system of claim 40 wherein the illuminator is pulsed on and off, the detector obtaining a first image when the illuminator is on and obtaining a second image when the illuminator is off, the processor determining a difference between the first and second images to mitigate effects of ambient light.